

REMARKS

The Office Action dated February 17, 2009, has been received and carefully noted. The above amendments and following remarks are being submitted as a full and complete response thereto. Claims 1-5 are pending in this application. By this Amendment, claim 1 is amended for clarification purposes only. No new matter has been added. Applicants respectfully request reconsideration of the application.

Entry of this Amendment is proper under 37 C.F.R. §1.116 since the amendments: (a) place the application in condition for allowance for the reasons discussed herein; (b) do not raise any new issues requiring further search and/or consideration on the part of the Examiner as the Amendment merely clarifies the claimed features of the invention; (c) satisfy a requirement of form asserted in the previous Office Action; (d) do not present any additional claims without canceling a corresponding number of finally rejected claims; and (e) place the application in better form for appeal, should an appeal be necessary. The Amendment is necessary and was not earlier presented because it is made in response to objections raised in the Final Rejection. Entry of the Amendment is thus respectfully requested.

The Office Action rejects claims 1-5 under 35 U.S.C. §103(a) as being obvious over Kinugasa et al. (U.S. Patent No. 5,783,160) in view of Dalla Betta et al. (U.S. Patent Application Publication No. 2003/0101713). Applicants respectfully traverse this rejection.

In particular, the current application claims an exhaust gas purifying apparatus for an internal combustion engine that includes NOx removing means provided in an exhaust system of the engine for adsorbing NOx in exhaust gases from the engine,

wherein ammonia is generated when the NOx removing means reduces the adsorbed NOx and the generated ammonia is retained when the exhaust gases are in a reducing state, reforming means provided upstream of the NOx removing means for reforming reducing components in the exhaust gases to hydrogen when the exhaust gases are in the reducing state, the hydrogen being outputted from the reforming means, and fuel adding means, as recited in amended claim 1.

Kinugasa teaches a method for purifying combustion exhaust gas by using a NH_3 decomposing catalyst (Abstract). Kinugasa also teaches that “ NH_3 is formed at the three-way reducing and oxidizing catalyst 3” (Col. 17, lines 34-36), the oxidizing catalyst being associated in the Office Action to the claimed reforming means (Office Action, page 3, lines 13-15). However, throughout the Kinugasa patent, Kinugasa teaches that the three-way catalyst 3 forms NH_3 (Col. 14, lines 65-66; Col. 15, lines 1-6; Col. 17, lines 34-36 and 39-41), but there is no teaching anywhere in Kinugasa of the reducing and oxidizing catalyst 3 outputting hydrogen. Although Kinugasa teaches that “ H_2 is formed by the reactions (4) through (6)” (Col. 4, line 7), Kinugasa also specifically teaches that “NO in the exhaust gas reacts H_2 and a small amount of NH_3 is formed” (Col. 4, lines 8-9). In other words, Kinugasa does not output hydrogen because hydrogen is consumed to produce ammonia in the reducing and oxidizing catalyst 3. Thus, Kinugasa fails to disclose or suggest this feature of amended claim 1.

Furthermore, Kinugasa fails to teach that the catalyst 3 reforms reducing components in the exhaust gases to hydrogen when the exhaust gases are in the reducing state, as recited in amended claim 1. In fact, Kinugasa clearly teaches that “when the oxygen concentration of the exhaust gas is low...the reactions (4) through (6)

[to form hydrogen] are not likely to occur" (emphasis added; col. 4, lines 18-21). The situation where the oxygen concentration is low corresponds to the situation where the exhaust gases are in the reducing state. Thus, Kinugasa fails to disclose or suggest this feature of amended claim 1.

Dalla Betta teaches systems and methods to improve the performance and emission control of internal combustion engines (Abstract), and is relied on by the Patent Office to cure the admitted deficiencies in Kinugasa in disclosing or rendering obvious the claimed feature of the fuel adding means (Office Action, page 1-7). However, Dalla Betta fails to cure the above-discussed deficiencies in Kinugasa in disclosing or rendering obvious reforming means for reforming reducing components in the exhaust gases to hydrogen, as recited in amended claim 1.

Furthermore, the Office Action alleges that it would be obvious to combine the teachings of Dalla Betta with the teachings of Kinugasa in order to "react all the excess oxygen present in the exhaust stream" (Office Action, page 4, lines 11-12). However, a closer examination of Kinugasa reveals that Kinugasa already regulates the amount of oxygen compared to the other components of the exhaust gas by teaching "...the engine 1 in this embodiment is operated at slightly rich air-fuel ratio..." (Col. 17, lines 29-31). Accordingly, Kinugasa already provides a mechanism to regulate the amount of oxygen being present in the exhaust gas. Combining the teachings of Dalla Betta to Kinugasa would be redundant and unnecessary. In other words, there is no proper rationale to combine the apparatus of Kinugasa with the apparatus of Dalla Betta. Furthermore, Dalla Betta fails to disclose or suggest any relationship between the emission control system and ammonia.

For at least the above-discussed reasons, Applicants respectfully submit that a combination of Kinugasa and Dalla Betta fails to disclose, suggest or render obvious the features of independent claim 1, and claims 2-5, which depend therefrom. Thus, claims 1-5 are patentable over the applied references, and Applicants respectfully request withdrawal of the rejection of the claims under 35 U.S.C. §103(a).

If the Examiner believes that anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below to schedule a personal or telephone interview to discuss any remaining issues.

In the event that this paper is not being timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to Counsel's Deposit Account Number 01-2300, referencing Attorney Docket Number **108420-00054**.

Respectfully submitted,



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